often unavoidable. During this period, coronary collateral circulation be an important alternative supply when the main blood vessels fail to provide adequate perfusion to myocardial tissues due to occlusion. This study aims to determine the effect of collateral circulation in MR Imaging-Verified Myocardial infarct size and myocardial salvage index (MSI) in the acute phase of STEMI treated with PPCI.
Methods: Study was designed as cross-sectional study involving 33 STEMI patients with symptoms < 12 hours who underwent successful PPCI. Samples were taken consecutively from November 2012 to April at the National Cardiovascular Center Harapan Kita Jakarta. Collateral flow was gradded regarding to Rentrop classification. Patients were divided into 2 groups; Group A had absent or weak collateral flow and group B had significant flow. All patients underwent cardiac magnetic resonance (CMR) to assess infarct size and MSI.
Results: In our study, 12out of 33 (36%) patients had significant collateral circulation (Rentrop grade2 or 3). Pre-infarction angina was a clinicalfactors associated with recruitable collaterals($p<0,001$). Infarct size expressed as percent LV mass (IS%LV) was significantly smaller in group B (14.2%vs. 23.3%; $p = 0.036$). Extent of MSI was significantly higher in group B (0,6 vs 0,1; $p<0,001$).
Conclusion: Well-developed collaterals before reperfusion by PPCI in patients with STEMI are associated with a protective effect on infarct size and MSI.

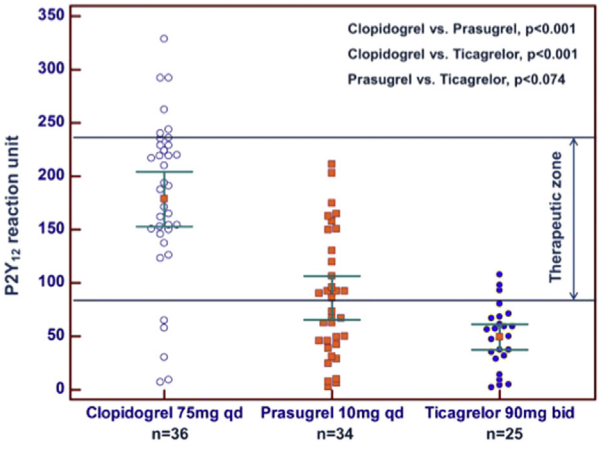
Antiplatelet Agents and Anticoagulants (TCTAP A-027 to TCTAP A-036)

TCTAP A-027

Comparison of On-treatment Platelet Reactivity After One-month Use of Clopidogrel, Prasugrel or Ticagrelor in Koreans with Acute Coronary Syndromes

Ji Hyun Lee, Sung Gyun Ahn, Jun-Won Lee, Young Jin Youn, Min-Soo Ahn, Jang-Young Kim, Byung-Su Yoo, Seung-Hwan Lee, Junghan Yoon
Wonju Severance Christian Hospital, Wonju, Korea (Republic of)

Background: Prasugrel and ticagrelor have greater anti-ischemic efficacy than clopidogrel, but they are not widely used in East Asia owing to their increased risk of bleeding. We compared on-treatment platelet reactivity (OPR) of these 3 drugs after 1 month in patients with acute coronary syndromes (ACS).
Methods: We assigned 95 patients undergoing percutaneous coronary intervention for ACS to clopidogrel, prasugrel, or ticagrelor treatment. We measured OPR using the VerifyNow P2Y12 assay. High OPR (HOPR) was defined by P2Y12 reaction unit (PRU) ≥240; low OPR (LOPR) was defined by PRU <85. We compared the numbers of patients with HOPR and LOPR after 1 month of antiplatelet treatment.
Results: OPR was lowest in the ticagrelor group (n=25), followed by the prasugrel (n=34) and clopidogrel groups (n=36, 49±30 vs 86±59 vs 179±77, $p<0.001$). HOPR was not noted in the prasugrel or ticagrelor groups, but was noted in 5 clopidogrel-treated patients (13.9%, p=0.007). The ticagrelor group had the most number of patients with LOPR, followed by the prasugrel and clopidogrel groups (88% vs 52.9% vs 13.9%, $p<0.001$). The clopidogrel group had the highest number of patients in the therapeutic window of OPR (PRU 85–239) (Figure).



Conclusion: HOPR to clopidogrel can be overcome by using prasugrel or ticagrelor. However, prasugrel or ticagrelor increased LOPR, which may lead to excessive bleeding events in East Asians.

TCTAP A-028

Comparison of Platelet Aggregation Before & After Loading Dose of Prasugrel and Clopidogrel in Percutaneous Coronary Intervention in Adult Pakistani Coronary Artery Disease Patients

Ahmad Shahbaz[1], Ahmad Nouman[1], Khawar Mehdi[2], Muhammad Azhar[1]
[1]PIC, Karachi, Pakistan, [2]Getz Pharma, Karachi, Pakistan

Background: The use of dual antiplatelet therapy with aspirin and a thienopyridine is an essential aspect of the supportive pharmacologic regimen administered to coronary artery disease (CAD) patients who are undergoing primary percutaneous coronary intervention (PCI). This study was carried out to compare the inhibition of platelet aggregation (IPA) between prasugrel and clopidogrel in adult Pakistani patients undergoing primary PCI.
Methods: A total of hundred subjects were randomly assigned to two groups A & B. Group A (n=50) received prasugrel (PRISA) 60 mg loading dose pre PCI and 10 mg QD maintenance dose, whereas group B (n=50) received clopidogrel 600 mg loading and 75 mg BID maintenance dose respectively. Adenosine diphospahte (ADP) was used as agonist before loading dose and post-PCI at 3-4 hours since it is the most commonly used agonist, particularly in systems that measure only platelet aggregation in whole blood.
Results: Male and female ratio was 4:1 in both groups. Mean age was insignificant between group A and group B (50.3±9.6 vs. 50.3±10.9; range: 29-68 and 23-71 years respectively). In Group A (Prasugrel) n=50; the respective occurrence of CAD was: LAD n=25 (50%), RCA n=14 (28%), Cx Distal n=5 (10%), MVD n=3 (6%), Non-stent 1 (2%) & others n=2 (4%). In Group B (Clopidogrel) n=50; the respective occurrence of CAD was: LAD n=23 (46%), RCA n=11 (22%), MVD n=8 (16%) & Cx Distal n=7 (14%) & others n=1 (2%). None of the patient experienced minor or major adverse cardiac events after taking loading dose in both groups. The before and after loading dose mean platelet aggregation (MPA) responses were statistically significant within the two treatment groups (Group A: 6.08±2.12 vs 1.56±2.11; $p<0.001$ and Group B: 4.27±2.06 vs 0.68±1.38; $p<0.001$). The mean reduction in platelet aggregation by Group A (Prasugrel) was 74.4% and by Group B (Clopidogrel) was 51.8%.
Conclusion: Prasugrel 60 mg loading dose (PRISA) achieves significantly greater IPA as compared to clopidogrel 600 mg LD. Both drugs were well-tolerated and adverse drug reactions were comparable.

TCTAP A-029

Low Dose Proton Pump Inhibitors in Patients Treated with Dual-antiplatelet Therapy After Acute Coronary Syndrome

Yoshiki Nagata, Takuya Mayumi, Tomoya Harada, Masaki Kinoshita, Isao Aburadani, Motoaki Hirazawa, Michiro Maruyama, Kazuo Usuda
Toyama Prefectural Central Hospital, Toyama, Japan

Background: The proton pump inhibitors (PPIs) with aspirin and clopidogrel are frequently concomitantly used to prevent adverse gastrointestinal effects. However, it has been reported that the antiplatelet action becomes attenuated when a PPI is used in combination with clopidogrel. The Food and Drug Administration issued a warning against the concomitant use of high dose (40 mg) esomeprazole/omeprazole with clopidogrel. This warning has raised concerns that the addition of a PPI to clopidogrel in acute coronary syndrome (ACS) patients could actually increase the risk of recurrent cardiovascular events.
Methods: The effect of PPIs causing platelet aggregation during the administration of clopidogrel was investigated after primary percutaneous coronary intervention (PCI). The subjects consisted of 122 cases of ACS. Platelet aggregation function testing (light transmission intensity method) was conducted while aspirin and clopidogrel 75mg were orally taken before discharge. The minimum concentration of aggregation induction (Platelet aggregation threshold index; PATI) was measured. The PATI, measured with ADP as the inducing substance, was compared and investigated according to the type of concomitantly used PPIs.
Results: The result of the PATI were: non-PPI group: 3.73±0.62 μM (N=18) and PPI group: 3.33±0.94μM (N=104). The difference of type of PPI were rabeprazole (10 mg) group: 3.63±0.63 μM (N=20), esomeprazole (20 mg) group 3.31±0.93 (N=39) and lansoprazole (15 mg) group: 3.21±1.06 μM (N=42). The omeprazole group was excluded, because the subjects were only 3 cases. The PATI of lansoprazole group was the lower than the other groups ($p<0.05$ compared with non-PPI group).
Conclusion: The effect of CYP2C19 differs depending on the type of PPI, with a difference being caused in the interaction with clopidogrel. The concomitant use of low dose lansoprazole reduced the antiplatelet action of clopidogrel. The low dose esomeprazole reduced the antiplatelet action, but the interaction effect was small. Rabeprazole was least influence on the antiplatelet action. When PPI is used in combination with dual-antiplatelet therapy in ACS patients, low dose esomeprazole and rabeprazole should be consideration.

TCTAP A-030

Safety and Efficacy of a Hybrid Dual Antiplatelet Therapy Regimen for ST-elevation Myocardial Infarction Patients: A Single-centre Experience

Deanna Khoo, Yee May Wong, Hee Hwa Ho, Yau Wei Ooi, Paul Jau, Lueng Ong, Fahim Haider Jafary, Kwok Kong Loh, Julian Tan, David Foo
Tan Tock Seng Hospital, Singapore, Singapore

Background: Prasugrel, a third generation thienopyridine is recognised as one of the cornerstone treatment of contemporary dual antiplatelet therapy (DAPT) in selected patients with ST- elevation myocardial infarction (STEMI) undergoing primary percutaneous coronary intervention (PPCI). The incremental cost of prasugrel coupled